

Dyna-Switch/24

24 Port 10/100Base-TX
Fast Ethernet Switch

FEP-31024T-2
rev. 2



USER'S MANUAL

Introduction

UNICOM's DYNA-SWITCH/24 (Rev. 2.0) is a 24-port 10/100BASE-TX Switch that can be used to build high-performance switched workgroup networks. This switch is a store-and-forward device that offers low latency for high-speed networking and is targeted at workgroup, department or backbone computing environments in SME (small, medium enterprise) businesses.

The DYNA-SWITCH/24 (Rev. 2.0) Switch features a "store-and-forward" switching scheme. This allows the switch to auto-learn and store source address on a 4K-entry MAC address table. It also supports Class of Service functions. No manual configuration is necessary. The CoS function is included in the switch firmware and will operate automatically when the switch is on.

Features

- ✓ Conforms to IEEE 802.3, 802.3u, and 802.3x
- ✓ 24-port 10/100Base-TX Switch with Auto-MDIX
- ✓ IEEE 802.3x flow control support
 - Flow control on full-duplex
 - Back pressure on half-duplex
- ✓ N-Way Auto-Negotiation supported
- ✓ Store-and-Forward switching architecture
- ✓ No-blocking full wire speed
- ✓ Embedded 1.25Mbits memory buffer
- ✓ Support IEEE802.1p Class of Service
- ✓ 4K-entry MAC address table
- ✓ 4.8 Gbps switch back-plane
- ✓ 19" standard size

Package Contents

Unpack the contents of the DYNA-SWITCH/24 (Rev. 2.0) and verify them against the checklist below.

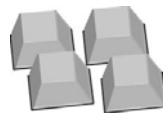
- ✓ DYNA-SWITCH/24 (Rev. 2.0) Switch
- ✓ Power Cord
- ✓ Four Rubber Feet
- ✓ User manual
- ✓ Rack Mount kits



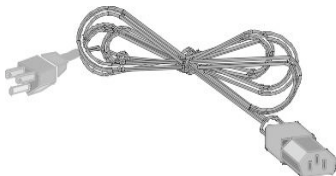
DYNA-SWITCH/24 (Rev. 2.0)



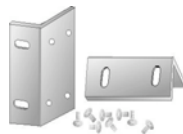
User manual



Rubber Feet



Power Cord



Rack-Mount Kits

Package Contents

Compare the contents of your DYNA-SWITCH/24 (Rev. 2.0) package with the standard checklist above. If any item is missing or damaged, please contact your local dealer for service.

Ethernet Switching Technology

Ethernet Switching Technology has dramatically boosted the total bandwidth of networks, eliminated congestion problems inherent with Carrier Sense multiple access with Collision Detection (CSMA/CD) protocol, and greatly reduced unnecessary transmissions.

This revolutionized networking. First, by allowing two-way, simultaneous transmissions over the same port (Full-duplex), which essentially doubled the bandwidth. Second, by reducing the collision domain to a single switch-port, which eliminated the need for carrier sensing. Third, by using the store-and-forward technology's approach of inspecting each packet to intercept corrupt or redundant data, switching eliminated unnecessary transmissions that slow a network. This is accomplished by employing address learning which replaced the inefficient receiving port.

Auto-negotiation regulates the speed and duplex of each port, based on the capability of both devices. Flow-control allows transmission from a 100Mbps node to a 10Mbps node without loss of data. Auto-negotiation and flow-control may require the disabling of some networking operations involving legacy equipment. Disabling the auto-negotiation is accomplished by fixing the speed or duplex of a port.

Ethernet Switching Technology has supplied higher performance at costs lower than other solutions. Wider bandwidth, no congestion, and the reduction in traffic is why switching is replacing expensive routers and inefficient hubs as the ultimate networking solution. Switching brings a whole new way of thinking to networking.

Hardware Description

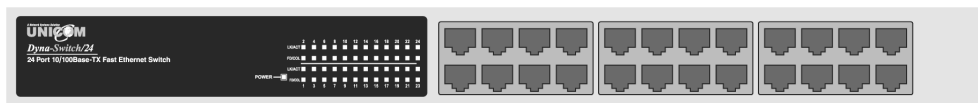
This section describes the hardware of the DYNA-SWITCH/24 and gives a physical and functional overview of this Switch.

Physical Dimension

The physical dimension of the DYNA-SWITCH/24 is **440mmx 120 mm x 44mm (L x W x H)**

Front Panel

The front panel of the DYNA-SWITCH/24 consists of (24) 10/100Base-TX RJ-45 ports. The LED Indicators are also located on the front panel of the Switch.



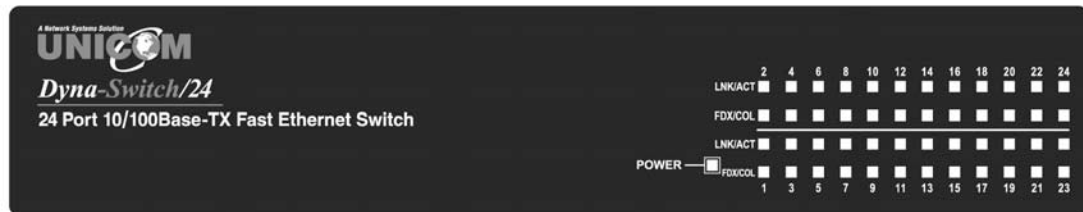
Front panel of the DYNA-SWITCH/24 (Rev. 2.0)

RJ-45 ports (Auto MDI/MDIX): (24) 10/100Mbps auto-sensing ports for 10Base-T or 100Base-TX device connections.

MDI (Medium Dependent Interface) ports are also called "uplink ports". The MDI ports do not cross transmit and receive lines, which is done by the regular ports (MDI-X ports) that connect to end stations. MDI means connecting to another Hub or Switch while **MDIX** means connecting to a workstation or PC. Therefore, **Auto MDI/MDIX** means that you can connect to another Switch or workstation with either crossover or non-crossover cabling.

LED Indicators

The LED Indicators gives real-time information of systematic operation status. The following table provides descriptions of the LED status.



| LED | Status | Description |
|---------|--------|---|
| Power | Green | Power On |
| | Off | Power is not connected |
| LNK/ACT | Green | The port is connecting with the device. |
| | Blinks | The port is receiving or transmitting data. |
| | Off | No device attached. |
| FDX/COL | Orange | The port is operating in Full-duplex mode. |
| | Blinks | Collision of Packets occurs in the port. |
| | Off | No device attached or in half-duplex mode. |

The Descriptions of LED Indicators

Rear Panel

The 3-pronged power plug is located at the rear panel of the DYNA-SWITCH/24 as shown in the figure. The switch will work with AC in the 100-240V AC, 50-60Hz range.



The rear panel of the DYNA-SWITCH/24

Desktop Installation

Set the switch on a sufficiently large flat space with a power outlet nearby. The surface should be clean, smooth, level and sturdy. Make sure there is enough clearance around the Switch to allow air circulation and the attachment of cables and the power cord.

Attaching Rubber Feet

1. Make sure mounting surface on the bottom of the Switch is grease and dust free.
2. Remove adhesive backing from your Rubber Feet.
3. Apply the Rubber Feet to each corner on the bottom of the Switch. These footpads can protect the Switch from shock and vibration.

Rack-mounted Installation

The DYNA-SWITCH/24 comes with a rack-mounting kit (not a standard option for this switch) and can be mounted in any EIA standard sized, 19" rack. The Switch can then be placed in a wiring closet with other equipment.

Perform the following steps to rack mount the switch:

1. Position one bracket to align with the holes on one side of the switch and secure it with the smaller bracket screws. Then attach the remaining bracket to the other side of the Switch.



Attach mounting brackets with screws

2. After attached both mounting brackets, position the DYNA-SWITCH/24 in the rack by lining up the holes in the brackets with the appropriate holes on the rack. Secure the switch to the rack with a screwdriver and the rack-mounting screws.

Power On

Connect the power cord to the power socket on the rear panel of the Switch. The other side of power cord connects to the power outlet. The external power supplies AC in the 100-240VAC voltage range, frequency 50~60Hz. Check the power indicator on the front panel to ensure power is properly supplied.

Network Application

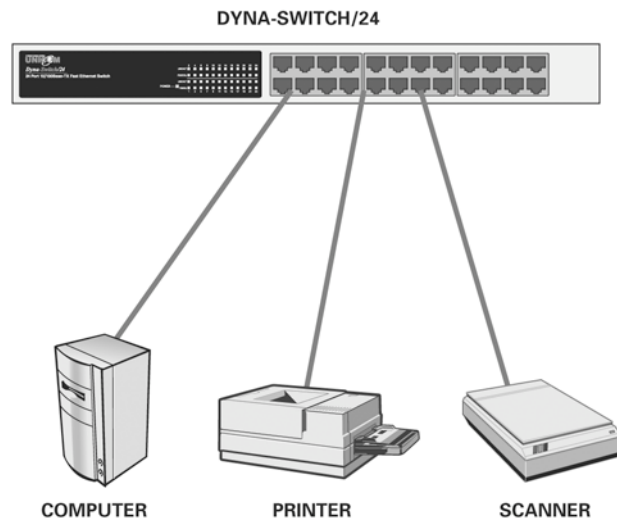
This section provides a few samples of network topology in which the switch is used. The DYNA-SWITCH/24 (Rev. 2.0) is designed to be used as a segment switch. With its large address table (4K MAC address) and high performance, it is ideal for interconnecting networking segments.

PC, workstations, and servers can communicate with each other by directly connecting with the DYNA-SWITCH/24. The switch automatically learns nodes address, which are subsequently used to filter and forward all traffic based on the destination address.

By using any port as an Uplink port, the Switch can connect with another switch or hub. This connects each of your small-switched workgroups to form a larger switched network.

Small Workgroup

The DYNA-SWITCH/24 can be used as a standalone switch to which personal computers, servers, or a printer server are directly connected to form a small workgroup.

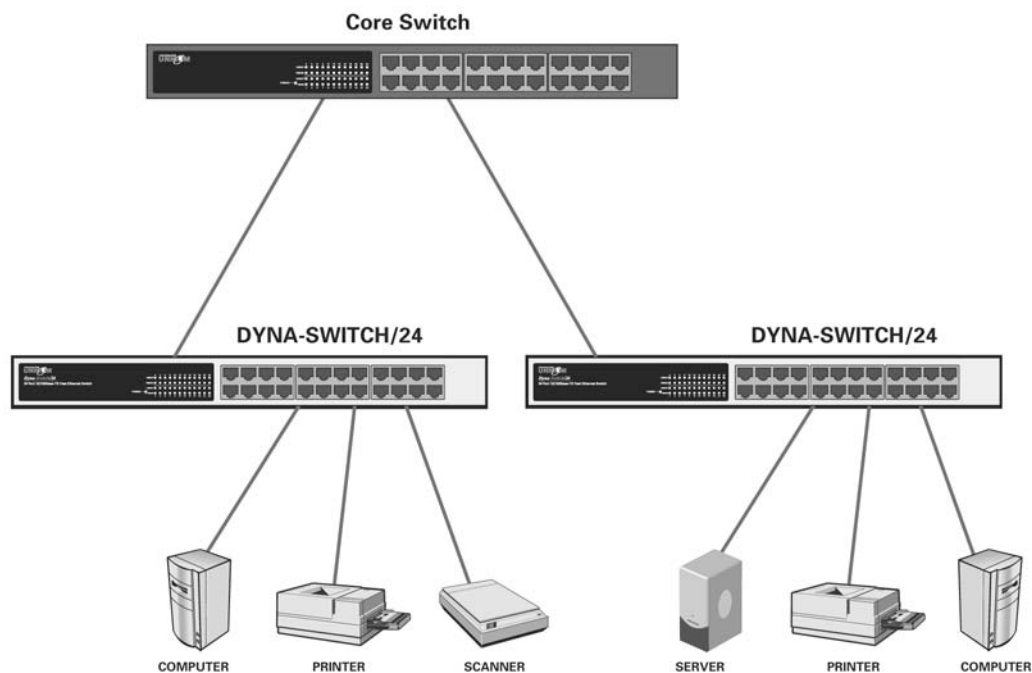


Small Workgroup Application

Segment Bridge

In enterprise networks where large data broadcasts are constantly processed, this switch is an ideal way for departmental users to connect to the corporate backbone.

In the illustration below, two Ethernet switches, with PCs, a print server, and a local server attached, are connected to the DYNA-SWITCH/24. Each device in this network can communicate with the others through the DYNA-SWITCH/24. Connecting servers to the Switch allows other users to access the server's data.



Department Bridge Application

Technical Specifications

This section provides the specifications of the DYNA-SWITCH/24.

| | |
|-----------------------------|--|
| Standard | IEEE 802.3 10Base-T Ethernet, IEEE 802.3u 100Base-TX Fast Ethernet IEEE802.3x Flow Control and Back-pressure IEEE802.1p Class of Service |
| Technology | Store and Forward switching architecture |
| Protocol | CSMA/CD |
| Transfer Rate | 14,880 pps per Ethernet port 148,800 pps per Fast Ethernet port |
| MAC address | 4K Mac address table |
| LED Indicators | Per port: Link/Activity, Full duplex/Collision Per unit: Power |
| Network Cable | 10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable EIA/TIA-568 100-ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5 cable EIA/TIA-568 100-ohm (100m) |
| Back-plane | 4.8Gbps |
| Transfer packet size | 64 to 1536Bytes |
| Dimension | 440mmx 120 mm x 44mm (L x W x H) 19" size |
| Memory Buffer | 1.5Mbits |
| Class of Service | 2 Queues per port for IEEE 802.1p class of service and support for IEEE802.1Q VLAN tag based priority rule. It will recognize 3 bits of precedence carried by the VLAN tag and map it to the specified priority queue. |

| | |
|-----------------------------|---|
| | <p>The packet with a 0~3 precedence value will flow to the low queue and 4~7 valued packets will flow to the high queue. It also supports weight round ration for high and low queue. The rate is 4:1 (4 high queue packets then 1 low queue packet)</p> <p>[Note] The CoS function is included in the switch firmware and will operate automatically when the switch is on.</p> |
| Storage Temp. | -10°C to 70°C (-40°F to 158°F) |
| Operational Temp. | 0°C to 45°C (32°F to 113°F) |
| Operational Humidity | 10% to 90% (Non-condensing) |
| Power Supply | 100-240 VAC, 50~60Hz |
| Power Consumption | 10.3 Watts (maximum) |
| EMI & Safety | FCC Class A, CE, UL& cUL, CE/EN60950 |



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